Particulate Monitoring Plan for Phase II IPWP

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NVL Project No. **2012-494.2**

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Introduction:

NVL Laboratories has prepared this ***Particulate Monitoring Plan*** to document air quality monitoring practices and procedures to be used for Phase II of the exterior paint abatement Work at Rainier Commons.

Background:

This *Particulate Monitoring Plan* is based on the amendments to the Phase I and II IPWPs, utilizing particulate monitoring as opposed to collection of air samples on media for laboratory analysis, which yields more accessible, real time data, and applies risk based analysis action triggers.

On August 11, 2016, the EPA issued a letter that served as a notification for modification of the Phase II Individual Phased Work Plan (Phase I IPWP) which allowed a change to the particulate monitoring with given conditions. This notification, Amendment 5 to the Risk-Based Disposal Approval, provides a reasonable and protective approach to human health and the environment by utilizing a health risk-based evaluative approach to particulate monitoring, rather than monitoring based on a deviation from background levels.

This *Particulate Monitoring Plan* was developed for the Phase II work to confirm the practices and procedures for conducting the continuous particulate monitoring, to confirm the application of a consistent conservative Action Level, and to set forth how Rainier Commons will respond to any action triggers.

Particulate Action Level:

The ***Action Level***, for unoccupied spaces, is 1.0 mg/m^3 TOTAL SUSPENDED PARTICULATE (TSP), after application of each individual particulate monitors' gravimetric correlation factor.

This action level is a conservative level set by EPA utilizing calculations that demonstrate that a health risk-based action level of 1.56 mg/m^3 would be extremely protective. All of the buildings included in Phase II have PCB concentrations well below the maximum concentration used for the calculation (321,000 mg/m^3) used to establish this action level. This action level will be triggered if the time weighted average for a monitoring period exceeds the 1.0 mg/m^3 particulate TSP level.

Criteria for Particulate Action Level

The criteria for setting the conservative particulate *Action Level* is detailed in the August 11, 2016 letter from the EPA, in which it states:

- The approach is based on worker protection. The same approach was used to set the audible alarm action level for interior dust monitors in Condition 10.b.iii of Amendment 4.

- The equations, justifications, and discussion for this approach are included as Enclosure 1, Statement of Basis, to Amendment 4 to the Risk-Based Disposal Approval.

Particulate Monitoring Plan Elements Include:

1. Continuous particulate monitoring will be accomplished using the EPAM-5000 instrument as approved and utilized in Phase I, with one EPAM-5000 instrument located outside, on the exterior of the contractor's containment structure and near to any auxiliary dust collection equipment (Cyclone HEPA or equivalent). Additional EPAM-5000 instrument(s) will be located in the interior space, inside the interior secondary containment structure, on the opposite side of the exterior wall being abated. Based on EPAM-5000 manufacturer's recommendations, one interior particulate monitor shall be utilized for every 45 lineal feet of wall space, with a minimum of one monitor in each tenant unit/room enclosed by the active Negative Pressure Enclosure (NPE).

2. Particulate measurements will be based on total suspended particulates (TSP) criteria.

3. Particulate measurements will be taken over an 8-hour period, on average. If blasting operations are of a shorter duration on a given day, particulate measurements may be collected over a reduced number of hours reflecting any limited blasting operations in such a day. Action Levels will be based on the Time Weighted Average (TWA) of these measurements.

4. Upon exceedance, if any, of the action level of 1.0 mg/m^3 TSP for unoccupied interior spaces and all exterior spaces, Rainier Commons will immediately cease blasting operations and report to the EPA Manager, within 24 hours of gathering the data from the monitoring period reflecting such exceedance and will report any actions taken in response thereto. Rainer Commons will also forward the 47mm glass fiber mesh filter from the EPAM 5000 to NVL Laboratories for analysis and testing for PCBs by NIOSH Method 5503. Based on this information, the EPA Project Manager will evaluate the significance of the reported exceedance and may direct Rainer Commons to take steps, in addition to those already taken and reported by Rainier Commons, as may be appropriate. Blasting activities shall not resume until authorized by the EPA.

Sampling Methodology:

A Certified Industrial Hygienist (CIH) will oversee this *Particulate Monitoring Plan*, any sampling analysis, data interpretation and reporting involved with the Work and the IPWPs.

Direct reading particulate measurements will be collected using a SKC HAZ-DUST EPAM-5000. Data recorded will be downloaded and stored on a computer for further analysis using the DustComm

Professional Software. Data will be evaluated and reported based upon the time weighted average for each monitoring period.

In addition, collection of air samples for potential laboratory analysis for PCB content will be performed simultaneously when particulate monitor is used. Specifically, an appropriate glass fiber filter will be used "in-line" on the particulate monitor as media to collect material for potential PCB analysis.

SKC EPAM-5000 Dust Monitoring and Sample Collection Criteria

Topic	Criteria
Levels to measure and data record	TWA, Min and Max
Particle Size Selection	TSP dust particles
EPA Air Quality Standard	TSP
Monitoring Period	8 hours
Sample collected every	1 second
Averaging Storage Intervals	10 Seconds

Procedures

The following procedures are based on:

- The operation of the SKC EPAM-5000 dust monitor as detailed in the *User's Guide* for the instrument
- Interim Approval Conditions identified in EPA letter, June 24, 2014
- E-mail from EPA, August 11, 2016 "Amendment 5 to Phase 2 IPWP for Rainier Commons"

These procedures address particulate monitoring data collection, assurance regarding proper operation of the monitoring instrumentation and location or placement of the EPAM-5000s.

- **Weekly Calibration Procedures**

Procedure	Manual Reference
Every Monday, perform the "calibration span" check. Acceptable "K" values (K +/- 10%) for the two testing instruments are: • S/N 07144497 K = 12.4 – 15.2 • S/N 07144498 K = 11.4 – 14.0	Page 5-2
Every Monday, check the flow rate of the EPAM-5000, to ensure it is set at 4.0 LPM.	Page 5-7

- **Daily Data Collection Procedure including Daily Calibration Procedure for OUTDOOR USE**

Step #	Procedure	Manual Reference
1	Begin Sampling Process. Determine wind direction by observing the American flag flying above building #1 (Tully's H.Q.) Locate EPAM 5000 downwind of blasting operation, and near auxiliary dust collector unit	Not Applicable (NA)
2	Install a 47mm glass fiber mesh filter in the filter cassette. Pore size = 1.0um. SKC Cat. No. 225-7047	Page 3-3
3	Verify and adjust flow rate to be 4.0 LPM	Page 5-7
4	Perform "Manual Zero" check.	Page 3-7.
5	Select particle size "TSP". Use the impactor sleeve without impactor. From the main menu, select special functions system options extended options select size.	-
6	Select sample rate, "10 seconds". This setting will provide for 60 hours of data collection. From the main menu, select special functions, system options, extended options, select size, select "sample rate to 10 seconds"	-
7	Begin sampling by depressing "ENT" button from the main menu.	Page 3-9
8	<u>End Sampling Period</u> A: After completing testing for the day, stop sampling by depressing the "ENT" button from the main menu. Record start/stop time, maximum/minimum readouts and the time of occurrence, and TWA along with total time tested (HH/MM). B: Apply the previously determined Gravimetric Correlation Factor to the TWA recorded in step 8	-
9	If the days' Time Weighted Average (TWA) does not indicate an exceedance, remove and discard the specimen gravimetric filter.	-

	If an exceedance is indicated, process the gravimetric filter for laboratory analysis utilizing a Chain Of Custody protocol to NVL Laboratories.	
10	Download data using DustComm Pro Software.	Chapter 4 Pages 4-1 to 4-18
11	Review DustComm data for significant spikes or other anomalies.	NA

- **Daily Data Collection Procedure including Daily Calibration Procedure for INDOOR USE (Tenant Space)**

Step #	Procedure	Manual Reference
1	Prior to initial blasting operations, obtain an 8 hour "background" dust level sample in each identified tenant space/unit. (Follow steps 2 through 6 and 9 described in OUTDOOR USE)	-
2	Set-up and run dust monitor in each tenant space which is within the NPE of the day's blasting area. (follow steps 2 through 9 described in OUTDOOR USE)	-

- **Maintenance Procedures:**

DAILY

Procedure	Manual Reference
Daily Charging of Battery / Battery Maintenance	Page 5-8

WEEKLY

Procedure	Manual Reference
Cleaning Impactors	Page 5-11
Cleaning Sensor Optics	Page 5-12
Checking the Calibration Span	Page 5-2
Checking the Flow Rate and / or Adjusting the Flow Rate	Page 5-5 and Page 5-7

Retention of Samples

- Media used to collect PCB air samples will within 72 hours of the end of the collection period, be either:
    - Submitted to NVL for analysis, or
    - Appropriately disposed by Rainier Commons if there has been no indication by the SKC EPAM-5000 dust monitor of an exceedance of the *Action Level*.
- Any samples submitted to NVL for analysis, if not destroyed by the analytical process itself, will be disposed per the laboratory's standard internal procedures for sample retention.

Actions To Be Taken If Any Exceedance of the *Action Level* Occurs

1 - Notification

Rainier Commons will notify the EPA Project Manager within 24 hours of the collection of the data from any monitoring period that reflects an exceedance of the *Particulate Action Level*, as set forth above, and will report the steps taken to address any such exceedance.

2 – Submission of Sample Media for Laboratory Analysis

Rainier Commons will submit to NVL all interior and exterior sample media collected during the exceedance of the *Particulate Action Level*, as set forth above, for laboratory analysis for PCB analysis.

3 – Laboratory Analysis

PCBs – PCBs will be analyzed utilizing a modified NIOSH 5503 Method.

References

- **Phase 2 Individual Phase Work Plan** (IPWP)
- **EPA Letter to Rainier Commons - June 24, 2014** – Re: Amendment to the Risk-Based Disposal Approval for Polychlorinated Biphenyl Bulk Product Waste at the Rainier Commons Facility, 3100 Airport Way South, Seattle, Washington EPA ID No. WAD 051239994
- E-mail from EPA, July 2, 2014 "Amendment 2 to Phase I IPWP for Rainier Commons"
- **EPA Letter to Rainier Commons – emailed August 11, 2016** – Amendment 5 to the Risk-Based Disposal Approval for Polychlorinated Biphenyl Bulk Product Waste at Rainier Commons Facility, 3100 Airport Way South, Seattle, Washington 98134 EPA ID No. WAD 05123 9994
- ***User's Guide****,* SKC EPAM-5000 Dust Monitor